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THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS

LITERAL AND SYMBOLIC KNOWLEDGE

The Problem

THE aim of intelligence is to know things as they are. The curious crave to see what is actually going on; it is no invention or experience of their own that instinctively interests them. Philosophers pursue the same end somewhat more steadily, when they seek general intellectual dominion and perhaps think they have attained it. The thought of any literal and final insight may be disclaimed and even despised in the practical arts and sciences, but only because here, too, people are preeminently interested in reality, which they feel is grasped by learning how things work and may be controlled, rather than by any private and visionary theory. What, indeed, could be more real in things than what operates in them? The inert, the sensuous, the ideal is no object for an animal mind. The sort of knowledge that successful practise involves and confirms need not be literal or exhaustive, but it must be knowledge of efficacious reality, knowledge of things as they are.

At the same time, differences of position and of perceptual endowment compel animals to approach the same energetic things through different avenues and to express their discoveries in different terms. Study of these instrumentalities may give rise to what is called the theory of representative knowledge, a theory which would interpose a screen of ideas between the mind and things and would prove that the essential aim of intelligence is hopeless and that any claim to know things as they are must be an illusion. Thus representative knowledge (like representative government, very often), far from representing its alleged constituency, ends by instituting an opaque medium, with its own character, interests, and life, which renders all reference to a constituency superfluous. The way is then open for the skeptic to deny the necessity of any realities behind appearances. Of course, the relativity of appearances to each observer, on which this return to absolutism is based, was discovered by studying those appearances and those observers in the midst of the real world they were moving in, and were distorting in their

various characteristic ways; therefore this skepticism is false, if its grounds are solid. But a self-contradiction, when it seems inevitable, justifies the most genuine skepticism, which is not a firm denial, but a conscious oscillation between contrary views; and if appearances are all we can ever discover why should we imagine anything beyond? Need we ever have imagined it? Soon the skeptic obeying the vital tendency towards a stable equilibrium, will become a dogmatist in the interests of his disruptive insight. He will affirm that these so-called appearances are the only realities, and that after all, since we know these directly, by an infallible knowledge of acquaintance, the aim of intelligence is perfectly attained, and we know things exactly as they are.

In this way the theory of ideas, after making a false exit in the direction of agnosticism, turns upon us as if by magic with a proof of infallibility. But such evolutions of theory evidently go too fast and too far; they bewilder us by treating additional considerations, which should serve to enlarge science, as if they were novel principles by which science is to be revolutionized. Even if ideas intervene between us and things, it does not follow that the ideas must become the object of knowledge and keep the things from being known. Words often intervene between us and ideas, but they do not necessarily prevent us from gathering what those ideas are. So ideas themselves may be an instrument or vehicle for knowing things: or if by ideas (which is an ambiguous term) we mean thoughts rather than images, they may be our knowledge of things, and by no means objects we perceive.

A total revolution in science might indeed be legitimate, if the foundations on which we had previously built were radically wrong; but a revolution which promises us infallibility, on the ground that immediate experience is all there is to know, begins by announcing the bankruptcy of knowledge, and is a philosophic catastrophe. In human knowledge, as in human life, there is travail, error, and the pursuit of objects difficult and glorious to attain, but perhaps, as conceived, often unattainable. That we possess all the while, without much caring for it, knowledge of acquaintance with immediate appearance, and suffer, as it were, from our ideas, as we do from our passions, is true enough; and this fact, when we reflect on it afterwards, may turn out to be important for pure esthetics and pure logic. There are in perception intervening images, necessary but instrumental for effective knowledge, which we instinctively overlook in our readiness to react on our dynamic environment and in our haste to understand it. Later we may notice these images and dwell on them delightedly for their own sake, when we regain the innocence of the eye and become passively contemplative. But the

urgent and perilous adventure of human knowledge is not of that sort: it regards surrounding, oncoming, undiscovered things, enemy preparations and silent opportunities outside of us, on which our fortunes depend. If our philosophy decrees that these momentous things do not exist or are unknowable, it becomes a mockery to us in our plight. The shuffling of sense-data is not understanding: it is the amusement of a self-spoiled mind, a psychological game substituted for a moral enterprise.

The skeptical suspicion that the aim of intelligence is doomed to defeat and that things as they are are unknowable, may be made articulate in the three following propositions.

First, that the very notion of knowledge or of an external reality to be known is absurd and self-contradictory.

Second, that reality is necessarily of such a nature as not to be expressible in any thought or open to any perception, human or other.

Third, that human thought in particular happens to be so limited and warped, and things happen to be so constituted, that no knowledge of them is possible to us.

Alleged Self-contradiction of Transitive Knowledge

The first proposition, which is the most radical, has never, so far as I know, been clearly put forward: yet it underlies all modern idealistic schools, perhaps even that of the radical empiricists and the new realists. A frank statement of the principle concerned might run as follows: The content of mind or thought is always its own present state. The postulate of knowledge, however, is that a present state of the self can somehow peruse something else, for example a past state or a future state, or something not a state of mind at all: which is evidently impossible. If in trying to defend knowledge we say that at least a mind or thought knows its own content, the phrase may be admitted, but only on the express understanding that this content is not an object, either physical or ideal, separable from the experience of it. The content is properly the quality of a state of consciousness, not its object. Therefore consciousness can know neither itself nor anything else; it merely *is* its content—a certain complex of terms in relation. It therefore makes no difference whether we say that consciousness is all, and that its objects are simply its content, or whether we say that the objects are all and that consciousness does not exist. In either case, knowledge is impossible.

Such, if I do not misconceive it, is the reasoning of all immediatists, whether of the mystical or the empirical type. It is pene-

trating reasoning, but it shows a great want of sympathy with intelligence. Knowledge leaves these minds unsatisfied, being always too little or too much for their critical conscience. They would like to conceive knowledge on the analogy of digestion or growth: they crave possession and expansion, not reports. The metaphor about the "content of consciousness" itself indicates this: it substitutes inclusion for pointing. But as a matter of fact, intelligence "points," as a dog does: it has alertness and intent: and knowledge reports upon subject-matters that indefinitely outrun its deliverance. Those who are in sympathy with intelligence and knowledge could not fail to take them in this sense.

The utmost approach to identity there can be between a mind and its object, when knowledge is perfect, is that the full essence of the object, and nothing more, should be present to the mind. If the object is ideal, like some Utopia or the triangle, the intuition, while introducing nothing foreign into that essence, will itself be an event and an existence, which the essence is not: so that the mental act and the ideal object even then will be far from identical. On the other hand, if the object is an existence, the perception or belief, if adequate, will describe the whole essence of the object: but in addition it will affirm (at the instance of the bodily response and practical endeavor which perception and belief rest on) that this object exists, and exists in a certain natural locus, related to that of the observer, here, there, or at such a time. In this case the diversity between the mind and the object amounts to the separable existence of each; for if the perception or belief is false, no object such as is described will exist at all where it is asserted to exist; and if the perception or belief is true, the object will be a natural fact on its own account, which might have existed quite as well undiscovered, but which very likely has contributed to produce, elsewhere and later, this additional fact—the knowledge of it.

Intelligence conceived after this fashion is something hazarded and subject to error, but it is not self-contradictory nor absurd, and may often yield true knowledge. Indeed its animal basis, which requires the cooperation of external influences, and its intent to describe these influences, tend to keep it true or at least relevant.

It it be still asked how intent can fix upon a thing at a distance, or of a different nature from the present sense datum and make it its present object, the answer must be, in brief, that sense data are initially signs: and that we may be cognizant of the object signified either antecedently, in consequence of some direct earlier perception (as we know the sound of a printed word from having heard it) or subsequently, by merely yielding to the suasion of the symbol and exploring what it points to—as when we raise our eyes on being

startled by a sound, or follow a scent, or feel the strong attraction of beauty. That the sign is a sign, and that there is something behind it, is a fact conveyed to us by the concomitant reaction of the rest of our organism to that particular impression. This reaction is not caused by knowledge, it is itself the ground of knowledge. The ground of the reaction is in some cases an innate instinct, in other cases an association established by training and experience. The claim to transitive knowledge, the assurance that our sense data are indications of further realities and not dead objects in themselves, is the intellectual transcript of a specific activity aroused in our bodies, or of readiness for such activity. Stupidity is the conscious expression of sluggishness, intelligence that of plasticity. Transitive knowledge simply recognizes in a judgment the actual relation in which our living bodies stand to their environment. If it be urged that such clairvoyance would be a remarkable and singular gift, we may reply that the gift is indeed remarkable, that it makes all the moral difference between animals and vegetables, or even between organic and inorganic bodies, and that it is called sagacity.

Alleged Unknowability of the Real

That there is an unknown reality behind appearance in many cases must certainly be admitted: otherwise no investigation could have any object or any success. Those who a generation or two ago talked about the Unknowable were open to all sorts of attacks—for verbosity, for arrested skepticism, for lack of dialectical acumen, for a sham deference to religion. Nevertheless the most useful criticism of them might have consisted in considering whether we may reasonably suppose undiscoverable things to exist, and in distinguishing the senses and degrees in which things, the existence of which we know, may remain unknown in their true character.

There is one sense, indeed, in which the notion of the Unknowable is radically absurd, namely, if it be called unknowable because it is supposed to have no nature or essence of any sort, so that not even omniscience could specify what it was. A being without any essence is a contradiction in terms. The existence of something without quality would not differ from its absence nor from the existence of anything else. There would be absolutely no meaning in asserting it—since what was asserted would have no character. This then is a sense of the term unknowable which those who defend the notion—and they include Kant as well as Spencer—could never have intended, although their language sometimes suggests such an impossible position.

What mystics have often held is rather that the real has a

particular essence (probably the essence of existence, which they call pure Being) but that no further predicate and no appearance has the least value in describing that essence. Every other predicate or appearance is particular and, like the dome of many-colored glass, both adds to pure Being something more (which they say can not *be*) and subtracts something from it: because, as each bit of stained glass in giving passage to rays of one sort excludes the rest, so every particular predicate narrows down universal being to one species. The great residuum which is thus denied (as all the future would be denied if any one said the real was the past) ought indeed, they maintain, to be excluded from pure Being in so far as that residuum includes other essences than the essence of existence; but it ought to be included in pure Being, in so far as every part of that residuum contains this essence. Thus, for instance, both past and future would be real by virtue of the pure Being they had in common, but all differences between them would be unreal.

This view is inspired by a mystical love of unity and peace which is morally respectable, like any sincere passion; but logically it is a mere hocus-pocus. The essence of existence, like every other essence, does not exist of itself; and when it is predicable of other particular essences, it is they that exist in all their variety, and not merely the essence of existence that exists in them. In other words, the essence of existence, or pure Being, is merely what all existences have in common; but all of them (save perhaps one which should have the single property of existence) have other qualities as well, so that other particular predicates or appearances may describe them truly. Pure Being, if it exists at all, is only one (and the least interesting) of these knowable things.

For be it noted, pure Being is not unknowable. Although we may well doubt that anything so simple actually exists in nature, this predicate may be seized alone, like any other, and we actually do seize it alone sometimes. The essence of existence is as far as possible from being the essence of nothing. It can become the object of a direct experience when, more special sensations being fused and blurred, we endure mere strain and duration without diversity—a most acute feeling. This element is no doubt always faintly present in experience, so that, as the mystics aver, we always have an adequate intuition of pure Being: but when isolated, this essence is seen to be very particular in itself, and easily recognizable. Nevertheless, because by definition it has no *other* quality than brute being, some logicians identify it with nothing, by a slight equivocation between nothing and nothing else.

The difficulties that surround the notion of mere existence are not native to it, but arise from a false indentification of it with the sub-

stance of natural things, and the consequent paradox that in knowing natural things we truly know only pure Being. This identification is a sheer confusion. The substance of natural things—however heterogeneous it may be from their sensible appearance—must, to be their substance, contain at least as much diversity and articulation as they do; for obviously what is identical everywhere can not be the ground of the differences between one thing and another; and what does not vary can not be the ground of variation in appearances. I do not mean to say that the variety of all substance must be itself a variation in time: the letters on this page do not move, yet they guide the changes in the reader's perceptions. To be sure, if the page stood alone and no eye ran over it, it would give rise to no successive appearances; so that when an unvarying substance is the ground of varying phenomena, another substance, itself in motion, must cooperate, to read off the changeless variety in the first substance and turn it into a series of changes.

If appearances, then, have a basis at all, this basis by definition must explain the diversity in the appearances, as well as their common properties or continuity; but it does not follow that the diversity of the substance must resemble that of the phenomena. The latter may be signs, not copies, of their ground, and heterogeneous expressions of it (like a good translation) even when they are adequate. Where they differ, what determines the original element in the expression, and whence is it fetched? No doubt in many cases it is drawn bodily from some associated object, as familiarity with the English language helps the reader to add the intended sounds to the letters on this page. But often the element added is a spontaneous creation, generated in the very act of expression, as the emphasis, interpretation, pleasure, or displeasure of the reader expresses a reaction of his organism under a stimulus never exactly applied before. And these elements are fetched neither from the printed page nor from the reader's past, nor telepathically from the author's long-lost intuitions: they are unprecedented, yet the creation of them, we may presume, is fully determined by the conjunction of dynamic processes, itself unprecedented, which marks the present moment.

Now it may be suggested that all phenomena are such spontaneous creations, generated by substances entirely heterogeneous from them. It would follow, of course, that we could give no account whatsoever of these substances. Even such notions as those of variety and variation would be only symbols for quite dissimilar properties in substance, properties which truly grounded these phenomena without resembling them.

Many mystics have inclined to this view; they are not absolutely faithful to the notion that pure Being, perfectly intuited by them at times, is the only reality. Yet they are faithful enough to it not to admit that any diversity (such as is implied, for instance, in omniscience or in the truth) or even any quality like unity or goodness is *literally* present in substance: for that would contradict the mystical premise that all appearance is superfluous to reality, and irrelevant to it. They steer a middle course, saying that knowledge, unity, and goodness are nearer to the nature of the real than the opposite qualities would be: so that the real is sometimes called by them supra-one, supra-good, and supra-intelligible. This reality seems, then, to have a more pregnant essence than pure Being: it is a fountain and focus of existence and of form; yet no predicate that we can utter or conceive can be literally asserted of it. The term unknowable, if applied to it, signifies that human categories can not express any part of its essence truly. Nevertheless, this ineffable essence is definite in itself, since some of our improper expressions or symbols for it are fitter to express it than others are.

It may seem a short step from saying that the real can only be expressed improperly to saying that it can only be described inadequately. Yet the difference between the two positions may ultimately become very great. If we hold that the senses and intellect can not know reality because they are too elaborate and articulate, the moral is, if we wish to know reality, to cease investigating and thinking. If we hold, on the contrary, that our human faculties can not know reality because their scope and distinctness are inadequate for the task, the moral is to try to enlarge and to sharpen them. So, for instance, when Plotinus said that the real could not properly be called one or good, because these are predicates, and the real admitted of no predicates, he turned his face towards silence and ecstasy; and but for the moral conviction, which Plotinus retained independently, that unity and goodness are on the path to God, his doctrine might have led back to a blank Absolute, to which all our thought and virtue were irrelevant, and which was so rudimentary a thing, perhaps, as mere life or the sense of duration. When on the other hand Saint Athanasius said that to call God one was inadequate, because while he was one God or one essence he had three hypostases or persons, the layman might well be puzzled; but the curious intellect at any rate was confronted with an express problem, and stimulated to formulate the Athanasian creed, or one no less articulate contradicting it: so that all human faculties were hotly and hopefully called forth, even if only to be wasted. The conclusion will be that we can know reality in part, both by reason

and by experience, we being akin to it in some measure; but that its nature is partly alien to ours and supernatural; so that we must always continue to face it with humility and contented ignorance, as well as with attentive scrutiny.

Why are our faculties likely to be wasted in investigating the supernatural? Not, I think, because it is presumably too unintelligible to reward attention. Many things quite unintelligible (the beautiful, for instance) fully reward it. The reason is rather that the supernatural, while supposed to be the source of many if not of all phenomena, is assumed to have no such structure, growth, and distribution of parts, as the basis of appearances must have, if it is to account for them or make them predictable. This defect might be corrected by conceiving a substance immanent in natural things yet common to them all and continuous throughout their breaks and alternations. Such a substance would not be supernatural, but it would be hypothetical and imperceptible. Such principles would be, for instance, the soul, or a diffused psychic substance sometimes gathered into souls; or again a formal principle like a transcendental will, law, or idea, governing things and events without being one of them. These formal principles have this advantage over concrete imperceptibles, like the deity, that there need be nothing occult about them; on the other hand, unless they are invoked superstitiously, formal principles are descriptions and not grounds of what happens. They cover the facts at best only in their most general outlines; no particular event can be deduced from them. The moral superiority of the supernatural over the transcendental does not concern us here, but it is also immense; because the supernatural, in virtue of its unfathomed nature, can involve all manner of supplements and transformations (such as heaven) outrunning our experience, whereas the transcendental is merely the method of our present experience made absolute and irrevocable.

Alleged Incompetence of Sense and Intellect

The obstacles to knowledge which we have considered so far arose from some hypothesis as to the nature of reality—that it was nonentity, or pure Being, or inexpressible, or supernatural, or imperceptible. An easy escape from such difficulties is always at hand; we have only to deny that reality has any such nature. We can not find any such beings; why should we trouble about them? But the opaqueness of reality is not necessarily due to the intrusion of such hypotheses. Among the things we undoubtedly come upon in this world many are obscure, not because their existence is questionable (except to a wilful skepticism), but because our apprehension of

them is external and confused. The past is obscure because removed; the inside of our bodies is obscure because complicated and hidden; a foreign language is wholly obscure if we are hearing it for the first time. Yet it would be unreasonable to suggest, on that ground, that perhaps there was no past, that there is nothing inside our bodies, or that the foreign language we are hearing does not exist or has no meaning. The existence of these things is obvious, only their nature is recondite from our point of view.

Matter is recondite in just this fashion. In the concrete it is only too perceptible: a bullet in your side, a stone wall before your face, are existences as real and as indubitable as any you could come upon. But what, precisely, *are* these obvious things? All physics and chemistry, in answering this question, only ask it again: what *is* an ion, what *is* electricity? Sophists are not wanting who even tell us that, while it is certain that material objects, like walls and bullets, exist in the gross, when you put their parts under the microscope the substance of them disappears, and they turn out to be made of nothing. What happens, presumably, is rather this: that the substance contained within the limits of those gross objects, when it plays upon our senses cumulatively and all at once, has an appreciable effect upon us; but when their substance is divided materially or analyzed logically into smaller or more abstract elements, our powers of perception and conception are soon outrun; the threads become invisible which, when woven together, made up the cloth we saw. Microscopes and ingenious analogies (used as hypotheses) may cause the horizon of our ignorance to recede indefinitely; and it is not inconceivable that in some respects, for instance in its mathematical relations, the nature of substance should ultimately be expressed by us completely. But of course matter must include a thousand concrete accompaniments, which in such a description are ignored. A military force, with so many men and guns, may be safely counted upon to overwhelm a force one tenth as strong, even though both armies contain endless personal, moral and material realities ignored in that calculation. To say that none of these ignored particulars affect the result at all, would evidently be false; to say that they all do so would be unwarranted; but we may safely assume that, under such conditions, the influence of other factors than numbers may be ignored, and that concrete events will corroborate the calculation made in abstract terms. So in physical chemistry we may safely operate with abstract terms to which no clear image corresponds in our fancy, the scale of the object being no longer the scale of our senses; but only the most shameless egotism would infer from that fact that the natural processes so expressed contain nothing but those abstract

terms. That would be as if a general, poring over his maps at headquarters, quietly informed you that, for military science, a man was simply 1/200 of a company; that to be 1/200 was his whole essence; and that to suppose he possessed other qualities, unknown to military science, or existed at all when his company was disbanded, was a baseless superstition. It is in this spirit, and with this truth, that idealists talk about the constituents of nature.

The obscurity, then, of such objects as matter (and psychic substance is in the same case) is merely one due to distance and complexity; it is the obscurity of crowds. Matter is corpuscular, it is immensely multitudinous, monotonous, democratic; its units (even if they are not ultimate units) are very small; its aggregates are very complex; and we, whose minds are, so to speak, cloud-minds, themselves expressions of vast moving systems, grope among the aggregates; we can not seize either the units or the laws that may bind and unbind them. Yet if our means of approach and the scale of our apprehension could be adapted to the fine texture of substance—which for practical purposes would not be helpful—there is no reason to suppose that any insuperable obscurity would be found in that substance. China or the Milky Way may seem very marvelous from a distance; nearer they might seem trivial; nearer still they might seem wonderful again, not now for their bewildering vagueness but for their calculable order. Crowds seen at close quarters may not prove very exhilarating to the heart, but they can be understood.

There is, however, another sort of obscurity in many obvious facts—or rather in all facts, at bottom—namely, indefinability. When I say that matter, seen at close quarters, might perhaps be understood, I mean that it might become perspicuous, as the furniture in a well-lighted room or the words of a clear passage are perspicuous: this perspicuity would be intuitive, not analytic or dialectical. No inspection, no analysis can ever render existence intelligible, or its movement deducible from logical necessity. All ultimate elements in what is known—including their primary relations—must be known by intuition; they are data given absolutely and unbuttressed by any reasons. Just what is most plain to sense is most puzzling to reason—if reason be unreasonable enough to expect that it should not be so; and what is intelligible to reason at one level—as Euclid is—may become arbitary and obscure to a reason that makes fewer intuitive postulates and asks deeper questions. The elementary terms of any description must—in that description, at least—remain undescribed; we must commend them to intuition. And therefore, if we have some other method in view at

the same time, so that we can transcend our intuitions without being altogether beside ourselves, those intuitions will seem to us obscure and questionable, in spite of their intuitive clearness. What is a sound to the eye? What is an emotion to the mathematician? What is a fact to a moralist? Unintelligible, because indescribable in terms alien to each special object, and proper to a different, more familiar, intuition.

It is not merely the surds of sense that are thus puzzling in their positiveness, but also the surds of logic—the axioms, categories, Platonic ideas, relations, or laws that are employed in any particular discourse. What is similarity? What is duration? What is space? What is existence? I know that an algebraic logic can give various answers; but they seem merely to be translations of these categories into terms which may express some abstract characteristic of them, while simply dropping their specific essence. If we continue to envisage this essence or the new essences substituted for it, the question arises: What is this? We can only point and direct our attention upon it anew, saying: This is this; and I know well enough what I mean, when you don't ask me.

This sort of humorous ignorance, which supplies all the terms for our reasoned knowledge, may well satisfy us in our saner moods; and we may suspect of sophistry any witling that quarrels with it. Nevertheless, it is quite true that deduction has a less arbitrary necessity than intuition, and is more persuasive to our minds; and as our intuitions are many and heterogeneous, we are actually able to dispense with almost any one of them under pressure. The logical relations of the essence intuited are of course not in the least affected when we lose sight of it, yet the fact that it can lapse from our consciousness, and that we discover how easily a world might have existed without any such quality, very much shakes our faith in the authority of intuition.

Here a distinction is important. Any intuition gives knowledge of acquaintance with an essence, not subject to error, since the intuition chooses its object in the act of determining itself, and asserts no existence of that object. For in this case it is not the object that produces the intuition or determines its character, seeing that this object is a mere essence without existence; but, *vice versa,* the intuition, determined in its existence and quality by underlying organic processes, chooses its object, and lends it for the moment a specious actuality, as when you improvise a dream. The infallibility of intuition is therefore nothing to boast of; it subsists only because judgment is in abeyance; the datum stands for nothing else, and the experience attained is merely esthetic or contemplative. In

a practical sense, therefore, intuition is not knowledge at all, since illusion and error are intuitions also. A man might experience the whole realm of essence and know nothing of this world; he might be stark mad; indeed, when we consider that to experience all essences would mean to look on every possible world, feel every possible pain, and hear every possible opinion, madness would be nothing to his condition. His infinite acquaintance with essence would at no point yield assertive and selective knowledge of fact. In the knowledge of fact there is instinctive conviction and expectation, animal faith, as well as intuition of essences; and this faith (which is readiness to *use* some intuitive category) while it plunges us into a sea of presumption, conjecture, error, and doubt, at the same time sets up an ideal of knowledge, transitive and realistic, in comparison with which intuition of essence, for all its infallibility, is a mockery. We might almost say that sure knowledge, being immediate and intransitive, is not real knowledge, while real knowledge, being transitive and adventurous, is never sure.

Two qualifications, however, are requisite to make this assertion quite true. The first is that intuition in one sense is transitive too, since the essences it observes are independent of it, not in existence (for they do not exist) but in character and identity, since whatever is true of any essence is true of it always, whether there be intuition of it or not; so that numerically distinct intuitions may choose the same essence for their object, and be thereby united in spirit. The other qualification needed is that knowledge of fact, while never demonstrably or absolutely sure, often reaches the highest degree of practical evidence, as when we retain and regard the immediate receding past, and say: Just now this happened.

Omniscience, as religion and theology bear witness, is a genuine ideal of the mind, because when things are equally true and real, why should one be saluted and recognized rather than another? Nevertheless, the actual limitations of human knowledge are no mere imperfection, much less a disgrace; they indicate partly our special genius, partly the relative nearness and relevance of things to us in the world. If our wisdom is Socratic, if we have a humble, practical, home-keeping mind, we may even love these limitations, as we love our native language and our native type of virtue. If we consider the realm of essence in itself, for instance, there is no reason why one musical composition or one architectural design should be chosen by us rather than another and realized in act; but the choices we actually make in these matters are not arbitrary altogether: they have subjective and historical grounds, and they reveal our genius to us. Our limitations here constitute our moral preference and our self-knowledge.

If we turn to knowledge of fact, our limitations are even more significant. That one thing is perceived or believed rather than another is evidence *prima facie* that this sort of thing happens to exist in our environment. Even when our conceptions are childish or false, it is almost certain that in the direction where we affirm our object to lie there is something that, at least partially and relatively, has the character we assign to it. For in perception and belief the influences we are responding to are our intended object; whereas in the intuition of essence the only influences we are responding to (which are organic) are overlooked and are not our object at all, our attention being wholly centrifugal and our object ideal. Our own life is indeed expressed by our intuitions, but it is expressed unawares. On the other hand, in perception and belief, while our life is similarly expressed unwittingly, the external influences which are molding our life are expressed intentionally. Here our choices are prompted by external contingencies: we seek what there happens to be. That we do not find something else is therefore in itself a valuable indication concerning the facts. Of course, we may occasionally be deceived altogether: because the machinery of animal response is necessarily so intricate that it may get out of order, and a merely internal stimulus, which ought to bring intuition without belief, may start a practical reaction, and so produce illusion, or the belief that the merely imagined essence is the quality of an external object. Yet hallucination, madness, and dreams are soon cured or soon fatal; so that the normal correspondence between perception and things reestablishes itself automatically.

Is this normal correspondence direct, exact, and complete knowledge of its object? Our theory might be simpler if we could say so; but the facts forbid. Take the most favorable possible case. Suppose that somehow we have discerned the ultimate elements of our object, and fully described their movement. It is clear that this mass of science can never be present to us simultaneously, in a single intuition adequate to the whole truth; most of the details must always be in abeyance, represented vaguely by a practical assurance that, under pressure, we should be able to recall or rediscover them. But this is not all; the most exhaustive account which human science can ever give of anything does not cover all that is true about it. All the external relations and affinities of anything are truths relevant to it; but they radiate in space and time to infinity, or at least to the unknown limits of the world; and its ideal relations in the realm of essence are even more intricate. The flower in the crannied wall would not need to reveal God and man to us by any mysterious sympathetic illumination; before we could know all about it we should have had to explore for ourselves the whole universe in

which it grows. Evidently complete knowledge of anything, if we include all its natural and ideal relations, is incompatible with mortality and with the biological basis of thought.

I need hardy add that even an isolated object, shorn of its radiation in the realm of truth, is seldom if ever open to inspection through and through. The scale of material processes is far from being the scale (established by the interaction of gross living bodies) of appearances to sense and reflection; and even when the scale is the same, as when the object is psychic, such as the thought of an interlocutor, the possible adequacy of our knowledge is momentary and unverifiable. Unanimity is necessarily brief in this world; the different environments and divergent lives of the most sympathetic friends carry each of them swiftly on his solitary way. After a while, what we retain of any book or any conversation is hardly more than a few phrases, with a dubious capacity to revivify them and expand them—probably into something new. Ordinarily, of course, since psychic communication is through material symbols, even a passing unanimity is not achieved. The words we hear or read float by without kindling any intuition, other than the comfortable rumble of their conventional sequence; or if an intuition springs up, it is more characteristic of the soil than of the seed that bred it, and has only some abstract affinity with the one it is supposed to reproduce. The conditions of living knowledge, its personal seat and necessary haste, render it, so to speak, tangential to its object. The two move in different planes, and the knowledge generated at the point of contact is always somewhat inadequate, and usually immensely so. Thus the disparity between human ideas and natural things, though not absolute nor irremediable, is real and habitual.

Is the skeptic right, then, in suspecting that intelligence is condemned to defeat?

Knowledge of Existence is Normally Symbolic

Here we have reached the culminating point of our survey, from which the arguments traversed so far and the truth to be attained lie spread out before us, like opposite valleys. All this insecurity and inadequacy of living knowledge, all these obstacles which reality, according to various hypotheses regarding its nature, offers to human comprehension—all these difficulties, I say, are almost irrelevant to the real effort of the mind to know natural things. The discouragement we may feel in science does not come from failure; it comes from a false conception of what would be success. Our worst difficulties arise from the assumption that knowledge of ex-

istences ought to be literal, whereas knowledge of existences has no need, no propensity, and no fitness to be literal. It is symbolic spontaneously, and its function (by which I mean its moral function of not leaving us in the dark about the world we live in) is perfectly fulfilled if it remains symbolical. What is more evident than that religion, language, all the passions, and science itself speak in symbols; symbols which unify the diffuse processes of nature in adventitious human terms that have an entirely different aspect from the facts they stand for? In all these regions our thought works in a conventional medium, as the arts do. The theater, for all its artifices (as when a hero warbles his inmost feelings before the footlights) nevertheless can depict life truly and in a sense more truly than history; so too the human medium of knowledge can perform its essential synthesis and make its pertinent report all the better, when it frankly abandons the plane of its object and expresses in symbols what we need to know of it. The Greeks recognized that astronomy and history were presided over by Muses, sisters of those of tragic and comic poetry: and they felt, if they did not teach, the complementary truth: that all the Muses, even the most playful, are witnesses to the nature of things, and would do nothing well if they did not studiously express it, with the liberty and grace appropriate to their diverse genius.

The symbolic medium of transitive knowledge would hardly have been overlooked, if literal knowledge did not exist also, in a different sphere. Literal knowledge is acquaintance with essence, esthetic or logical intuition or construction, the object of which is purely ideal and, without existing in itself, is summoned into a specious actuality by the flash of attention that lights it up for a moment. This experience is delightful to us, like play; it exercises our faculties without warping them, and lets us live without responsibility. The playful and godlike mind of philosophers has always been fascinated by intuition: for philosophers—I mean the great ones—are the infant prodigies of reflection. They often take this literal knowledge of essence for their single ideal, and wish to impose it on the workaday thoughts of men. But knowledge of existence has an entirely different ideal. It is playful, too, as we have just seen; it is rapid, pregnant, humorous; it seizes things by their skirts, when they least expect it, and gives them nicknames they might be surprised to hear, such as the rainbow or the Great Bear. Yet these nicknames, like those which country people give to flowers, may very pointedly describe how things look or what they do to us. The ideas we have of things are not fair portraits: they are political caricatures made in the human interest, but very often, in their partial way, masterpieces of characterization and insight.

Consider the reason why, instead of cultivating congenial intuitions, we are drawn into the study of nature at all. It is because things, by their impact, startle us into attention and thought. Such external objects are noted and are interesting for what they do, not for what they are; and knowledge of them is significant, not for the essence it displays to intuition (beautiful as this may be), but for the events it expresses or foreshadows. It matters little, therefore, to the pertinent knowledge of reality, if the substance of objects remains recondite or unintelligible, while their total movement and operation is rightly conceived. It matters little if their very existence is vouched for only by instinctive faith and presumption, so long as this faith happens to be true and this presumption prophetic; for the function of perception and natural science is not to flatter our sense of omniscience, but to bring us presently important news of the strange world we live in. It matters little that this news is fragmentary, and rhetorically expressed, if on hearing it we are moved to the right action and gain a true view of our destiny and its momentous alternatives. All these inadequacies and imperfections are proper to perfect signs.

It is a consequence of this fact, and no paradox, that as science becomes more applicable and exactly true, it becomes more abstract and mathematical. As representative art is at its best when it is selective, when it ignores the detail of its model in order more emphatically to render its charm and its soul, so knowledge of the environment is at its best when it is frankly symbolical, is not ashamed of its technical or sensuous medium, and describes its object with discrimination, never attempting to rival it in elaboration or to slip into its place. No one would take astronomy for the stellar universe: astronomy is not at all like the stars, being human discourse; but it tells us about them truths most penetrating and certain; and in its calculations and hypotheses there need be nothing false. But if the stars are not composed of the calculations and hypotheses by which we know them, why should we expect nearer things to be composed of the sense-data which report them? A symbol has a transitive function which its object, being an ultimate fact, has not; the symbol may therefore very properly or even necessarily have a substance, status, and form different from those of its object. This diversity is not an obstacle to signification, but a condition of it. Were the representation a complete reproduction—did the statue breathe, walk, and think—it would no longer represent anything: it would be no symbol, but simply one more thing, intransitive and unmeaning, like everything not made to be interpreted.

Here, as I conceive it, is the element of truth in the theory of representative knowledge. There is certainly a vehicle in the per-

ception and conception of natural objects, a sensuous and logical vehicle quite unlike the efficacious thing; and often the symbol is the more faithful in effect, the more succinct and alien it is in quality. But there is no screen of ideas; there is no arrest of cognition upon them. The "idea" is not an object—except in those eventual sciences that study symbols for their own sake. If the term "idea" is taken passively and means an essence, the idea is the group of predicates attributed to the object; and if the term is taken actively and means a perception or thought, then it is the true or false opinion that the predicates it attributes to the object are a part or the whole of its essence. This active idea or opinion, be it observed, probably has itself *none* of the predicates it expressly attributes, whether it attributes them truly or falsely. It is the act of attributing these predicates, a judgment having a logical, moral, and historical status, but not perceptible by any of the senses. It is experienced only by being meant, and exists only by being asserted. Even the passive idea or essence, which is simply the group of predicates attributed, is at best the essence of the thing, never the thing itself; for the essence is individuated by its definition, and has only ideal and necessary relations to other essences which it may include, or resemble, or be a part of; while the thing is individuated by its place, date, and dynamic external relations—qualities incompatible with any essence or "inert idea."

The symbol, taken as a fact, has an assignable character of its own—is visual, audible, or verbal—but taken functionally it is wholly and essentially transitive. To stop at it would arrest knowledge, not analyze it; as when by a trick of apperception a printed word suddenly becomes a dead and strange phenomenon, and we wonder how its meaning came to be attached to it, and has prevented us all our lives from noticing the actual word in its uncouth individuality. The bond between the individuality of the symbol and its significance is indeed an external one, based on an instinctive or a conventional association; and it is only the *system of external relations* into which the symbols are woven that copies or reproduces the same *system of relations* in the thing signified. Knowledge of nature is a great allegory, of which action is the interpreter. Moreover, the whole system in the symbol may correspond only to an abstract element in the system of things; and if that abstract element is all that concerns us for the moment, the symbolism will be adequate nevertheless. I will not trouble the reader by illustrating this at length; let him, if he is at a loss for my meaning, think out for himself the relation between gestures and the passions they betray, between music and musical notation, between names and things, between words in one language and words of the same meaning in another.

The sensible and structural divergence between symbol and object or symbol and symbol, may be complete in these cases; yet the correspondence may be exact notwithstanding, and the function of signification and suggestion may be fulfilled perfectly.

Nature of the Symbol

Let us not misunderstand one another: when I speak of a sign or symbol intervening in knowledge of existence, what kind of existence do I attribute to this middle term? Is it a full-fledged thing, in the same world as the object, which may conveniently be substituted for the object, when the latter is not so easily found or manipulated? Often, I answer, a sign is just that, when we are able to perceive the material instrument of knowledge and to recognize some feature in it as an index to the object. A map, for instance, represents a country-side, but it is just as truly an independent material object. There is no ontological diversity here between symbol and thing; there is only a difference of scale and elaboration, with a specific analogy of form; things which together render the smaller thing a useful symbol for the greater. I suppose in such cases there can be no denying the dualism of sign and object, and the unmistakable direction of attention and intent on the object, about which information is sought and given, even while the eye is poring upon the representation. Here, because one thing is an index of another (and nature, apart from art, is full of such correspondences) it is turned by ingenious man into a symbol of it; analogy, made use of, becomes representation. Though the two facts are materially collateral, one comes to carry our thoughts in the direction of the other, and to give us prophetic knowledge of it.

A map is an artificial instrument of information, lying outside the observer's body: it is consequently clearly distinguished by him, and the sensible essences it brings to his consciousness are predicated of the map. He is not tempted to assign the colors and printed words on the map to the country symbolized; the essences he attributes to the country, on the authority of these symbols, do not in the least resemble them; they are thought and imagined, not seen, and he is not seriously inclined to suppose that he sees them. But when the material instrument of information (for there always is one) is some living and hidden part of his own organism, on which nature is continually drawing momentary maps of her own, then the essences evoked can not be predicated of this instrument, since it is not envisaged at all in perception, as the map must be while it is being deciphered. The consequence is that in such cases the symbolic essences shining out in consciousness are asserted directly of

the object, as if a child believed that the letters and colors on the map were intrinsic features of the land and sea. This hypostasis of symbols is a sort of sensuous idolatry.

Such sensuous idolatry is constitutional in the animal mind, because its intended object is whatever external existence may be acting upon it, while its data are essences evoked by the organ of perception. Perception is thus originally true as a signal, but false as a description; and to reach a truer description of the object we must appeal to intelligence and to hypothesis, imagining and thinking what the effective import of our data may be, as in deciphering the map we must think and imagine the features of the country it represents.

The fact that the direct source of data is the organ in operation, not the object, has this further consequence, that immaterial and ineffectual things may become the objects of knowledge, only the instrument of knowledge being active and material, as is the case when we know the past, the future, or the outlying parts of human discourse, such as other men's passions.

The sign here is a gesture, a contortion of the features, or a rush of words; the object signified is an emotion and a propensity to action. To understand the sign it is by no means necessary that the passion should have been experienced by us before in our own persons; the association is not external, but physiological; it is suggestion. We do not need, in order to understand a thought expressed to us for the first time, to have already thought it, and previously associated it with just these phrases, so that the phrases may call it up. The roots which the understanding of gestures and words has in our organism are partly innate, partly acquired; they secure a determinate deviation and discharge of the processes initiated in our system by those gestures or words. But this deviation and discharge, though specific, is unprecedented. What the process of understanding reveals to us, as it culminates, is not an accomplished fact, but a possibility, a dramatic figment—the sort of feeling, the sort of intention, which the man talking to us *might* have. Our divination may at times far outrun his actual consciousness, or move in unison with it, or anticipate it (in the way that so much astonishes the superstitious); usually it will have a quite different nucleus and quality. Yet even when least sympathetic, we understand that another man's gestures and words mean *something*, that they mean, for instance, friendliness or hostility to ourselves. The vagueness of the interpretation we are satisfied with does not reduce one whit the felt expressiveness of his conduct; never for a moment do we regard him as an automaton, or a picture, or an idea in our minds.

We look in order to understand, not—unless perhaps we are painters—simply to see. We read the data of sense like a book; we know they are symbols, and we are perfectly aware that these indications leave us ill informed about the complete reality; though probably we show a healthy indifference to what the rest of the reality may be. This animal contentment in vagueness—this loose hold on sense because it is only symbolic, and on things because they are not all given in sense, this habit of shallowness—is even more prevalent when the object is material than when it is moral. Men were wise long before they were learned; their curiosity turned to poetry and religion before it turned to science. Not that they were content with the subjective or conscious of it; they were sure that their dreams were significant, and thought the dead must exist so long as they were remembered; but eager as they were to understand, they were immersed in imagination; their symbols were rhetorical and overloaded, and they took them for literal revelations.

On the other hand, in yet other instances of signification, what tends to disappear and what some are tempted to deny, is rather the sign, the object being evident. The more intelligent we are the more this happens to us, and those who overlook the medium of knowledge thereby prove how quick and ready they are to know. They read their music so well, that they think they have only heard it. But what may well be true of conscious experience, so far as self-knowledge has gone, namely, that it knows objects directly, is never true of the complete animal process of knowing. A medium, though it may be disregarded, always exists; otherwise all objects would always be known through and through and together. For this reason those who deny a medium of knowledge, if they have any speculative competence at all, have to introduce a medium of ignorance instead: nothing helps us to know, they say, but (since our knowledge is strangely limited and relative to our organs) something keeps us from knowing everything we don't know. Our eyes are blinkers; our brain is a roof, to keep the inclemencies of truth and reality from overwhelming us. This inversion is wilful, and incompatible with the facts of perception, imagination, and error; yet for the present purpose it does very well: it shows that the choice of aspects to be attended to in things is made by some perceptive organ. What qualities shall be found in or attributed to an object is a point determined by the structure of the organ, not by that of the object. The mind, in its haste, may regard the selected quality as the whole essence of the object: that will be a great though natural illusion, inevitable until the object has been approached from some other quarter as well. But to regard that sensuous quality as the object

itself would be a greater illusion, into which no animal falls, but which is reserved for skeptics. In truth these sensuous data have about the same relation to the actual object as the gods of Olympus had to the atmosphere, the heavenly bodies, and the arts of life; and it is just as easy, when our knowledge is enlarged, to dethrone them, and recognize them for poetic symbols. We may even discard some of them, but only if we keep or construct others. We can not do without symbols, because the entire and intrinsic nature of real objects is not open to apprehension nor manageable in discourse. If we take either obvious sensuous data or *minima sensibilia* to be intrinsic to the object—as the early poets took the gods to be—we shall be subject to the same illusion as they; and time will disenchant us.

An expedient to which some resort to whom transitive knowledge is a stumbling-block, is to ask if signs may not be *parts* of the things they signify, and the data of sense *parts* of the object of knowledge. A truth is no doubt approached or hinted at in this question, but it is not correctly expressed. Signs can not be parts of what they signify, nor essences parts of things. That would be like saying that the symbols VII. and 7 might be parts of the series of numbers; or various ellipses, which a round table makes to the eye when seen in perspective, might be parts of the table.

Two things, however, may be truly said instead. The first is that in some cases, unlike the above, the essence of the symbol may be a part of the essence of the object, as when initials stand for names; but this is seldom the case when the symbol is valuable, its value being due precisely to its lying in a different medium from its original; and then the common element in the two essences is probably very abstract indeed, like mere multiplicity or order. But take a case of concrete resemblance, as when the image of the table, being seen from above, reproduces the circle which is present in the table itself. Even here the specious circle (which ceases to exist if I close my eyes) is no part of the wooden table; only the essence "circle" is a part of the essence "circular table"; so that my sensuous sign is here a literal description of the table in one particular. Nevertheless, the status of this visual circle is the same existentially as that of the ellipses that would replace it, quite as usefully, at any other angle of vision. It is pictorially more adequate; as a photograph is pictorially a more adequate symbol for a man than his signature; but functionally, in the business of life, the signature may be a surer and more valuable representative; and so the ellipses may be upon occasion. In any case, even the pictorial copy, the photograph or the circular image, is an entirely discrete embodiment of that essence from its embodiment in the object—distinct from it in

place, duration, origin and substance—so that to call the symbols parts of their object is, to be quite frank, nonsense.

The second thing that may be truly said concerning the inclusion of signs in the reality signified, is this: that signs are parts of a great human segment of the universe, in which material, psychic, and ideal elements are implicated, and in which the number seven as well as the graphic signs for it, and the round table as well as the visual ellipses are to be found; and if we chose to name this whole biological and logical system after its most interesting element or nucleus, we might, at a stretch, call everything that has to do with the series of numbers a part of that series, and everything that has to do with the table a part of the table; so that only the nucleus of the table would be made of wood, while its interesting penumbra was made of air, nervous tissue, and the laws of light and of perspective; but this would be poetic license. The series of numbers and the table are not in fact composed in part of graphic symbols or of visual ellipses; they are merely expressed at times by those numerals and ovals in the language of sense or of convention.

Conclusion

The conclusion of our whole inquiry is that complete knowledge of natural objects can not be hoped for. We know them by intent, based on bodily reaction; we know them initially as whatever confronts us, whatever it may turn out to be. That something confronts us here, now, and from a specific quarter, is in itself important information; and the aspect it wears when we observe it more narrowly, though it may deceive us, is also a telling witness to its character. Symbols identify their objects, and show us where to look for their hidden qualities. Further symbols, catching other abstracted aspects of the object, may help us to lay a siege to it from all sides; but symbols will never enter the citadel, and if its inner core is ever to be opened to us (as it may be perfectly well) it must be through sympathetic imagination. We may, at best, intuit the essence which is actually the essence of that thing. In that case our knowledge will be as complete and accurate as knowledge can possibly be; yet since this adequate knowledge will remain transitive in intent (seeing it is not satisfied to observe the given essence passively, as a disembodied essence, but instinctively affirms it to be the essence of a thing confronting us, which our bodies are hastening to cope with) therefore this affirmation remains a claim to the end, subject to the insecurity inseparable from animal faith, and from life itself.

Such seem to me to be the varying degrees of knowability in

things natural and ideal; and if my account is complicated and eclectic, I can only say that I believe the world in which we live is far more complex and polyglot. It would be well for us, since we must be biased and fragmentary, to cultivate as many independent ways as possible of depicting the world. We need not miss all the parts, even if we miss the system. Our thoughts are not varied and plastic enough to cope with reality; yet our theories are always striving to make them more unitary and rigid. Poor indeed would human nature be, if philosophers had made it. Fortunately knowledge is of natural growth; it has roots underground, prehensile tendrils, and even flowers. It touches many miscellaneous things, some real and some imaginary, and it is a new and specific thing on its own account.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Scientific Study of the College Student. H. D. KITSON. Psychological Review Monograph No. 98. 1916. Pp. 81.

In this monograph Dr. Kitson discusses the attempts being made at the college of commerce and administration of the University of Chicago scientifically to determine the capabilities of the students, especially in their freshman year. That such determination is desirable was recognized long ago, and is becoming increasingly evident with lapse of time. Academic "cripples," who in the past were often thought of as necessary phenomena of the curve of distribution of college grades, are not always so evaluated at present, while the claims of the better-than-average students to especial care and training are increasingly admitted. Because of these facts the college of commerce and administration, with some other colleges throughout the country, is attempting to find some scientifically accurate method of studying the individuals of the student body.

A very complete study of the school, social and personal history of the candidate for admission to the freshman class is made, and this is correlated with the results of numerous conferences with the dean of the college, with the quarterly reports of instructors, with results of medical examination, and with the results of a series of psychological tests. It is with this last that the monograph is concerned.

In making up the series of tests to be used attention was given to the degree in which procedure in administering has been standardized by other experimenters, to economy in time and effort in

administering, and to the degree in which the practise effect occurs. Those tests in which the practise effect is very evident were considered unsatisfactory.

After a survey of the tests of possible applicability there were chosen sixteen as follows: Number-checking; memory for numbers heard; memory for objects seen; memory for logical material, heard; secondary memory for same; immediate memory for logical material, seen; secondary memory for same; loss in logical material, heard; loss in logical memory, seen; opposites test; constant-increment test; hard-directions test, printed; directions test, oral; word-building test; sentence-building test; business-ingenuity test. These tests were not given in serial order, as some of them were given to groups and some to individuals, and some required the lapse of time after the administering of the test immediately preceding them in the serial order.

Forty students were tested—32 freshmen, 6 sophomores, and 2 juniors. There were 31 men and 9 women. Their average age was 19.9 years. Inasmuch as they all came from the college of commerce and administration they were to some extent a selected group. The tests were given at a uniform time of day, and always by Dr. Kitson.

It is interesting to note that no sensory tests are included in the list, but one misses more tests of kinesthesis and of motor control which, it would seem, might well have been included.

A method of numerical scoring was arranged for each test according to definite rules rigidly adhered to. The net scores of the individual students were obtained by adding the units of deviation above the average and those below the average, and subtracting the smaller from the larger number. Thus the net scores for the forty students ranged all the way from $+259$ to -255. The results were also graphed about an average line in terms of deviation stated in proportion of the standard deviation, for each test of each student. The individual variation of a particular student might vary from $+3$ S. D. to -3 S. D.

A correlation of .44 was found between the results of the tests and the university grades of the students. An estimation of the actual intelligence of the students made by the dean on the basis of all information at his command bore a correlation of .57 with the tests.

Several specific cases are given of the kind of aid which the tests afforded in the handling of certain students whose records offered difficult problems.

The final chapter is an essay on the need for, and the nature of, vocational guidance for students. Interesting figures are given from investigations of the student bodies at Chicago, Ohio Wes-

leyan, Dartmouth, Columbia, and Minnesota as to the percentage of students whose vocational choices had not been made. The number undecided is large. The discussion of vocational guidance is commendably moderate in tone, and offers several interesting ideas.

The monograph as a whole is a valuable contribution to a field which requires a huge amount of work before it is completely surveyed. It is refreshing to find accuracy and care combined with moderation in claiming results, to such an extent as is true of Dr. Kitson's work.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW, January, 1918. *Consciousness and Self-Consciousness* (pp. 1–20): WILLIAM HENRY SCOTT.–Reviews and rejects the accounts of consciousness as set forth by James, McGilvary and Woodbridge. Affirms the distinction between consciousness and self-consciousness, shows how the "self" can be both subject and object and yet one undivided and indivisible self. *Pragmatism vs. Dualism* (pp. 21–38): A. K. ROGERS.–Criticizes the pragmatist's tendency to dismiss non-pragmatic views as unreal and artificial. Proceeds from the standpoint of common-sense dualism to a critical analysis of the concepts, knowledge, consciousness and experience as set forth by Dewey. Concludes that Dewey does not succeed in avoiding subjectivism and that the epistemological problem can not so easily be set aside. *Paraphysical Monism* (pp. 39–62): LEONARD THOMPSON TROLAND.–"Paraphysical monism may be regarded broadly as a purged and modernized edition of the general idealistic *Weltanschauung.*" Through an empirical study of the relations between consciousness and the physiological process of response, it is claimed that the key is found for a synthetic interpretation of the results of psychology and physics which will give to the physical universe a metaphysical meaning. *Discussion: Beyond Realism and Idealism vs. Two Types of Idealism* (pp. 63–75): WILBUR M. URBAN, J. E. CREIGHTON.–A review of Professor Creighton's paper, "Two Types of Idealism," in which the claim is made that there are elements in Professor Creighton's argument which lead logically to its abandonment. A brief reply and defense by the author. *Reviews of Books:* Former Students in the Sage School of Philosophy of Cornell University, C. H. Sabine, editor, *Philosophical Essays in honor of James Edwin Creighton:* WARNER FITE.

Harold J. Laski, *Studies in the Problem of Sovereignty*, GEORGE H. SABINE. Walter T. Marvin, *The History of European Philosophy*, ELLEN BLISS TALBOT. *Notices of New Books. Summaries of Articles. Notes.*

REVUE PHILOSOPHIQUE, January, 1918. *Psychologie du langage* (pp. 1–27): H. DELACROIX. – A summary of results of the psychological study of language. *La matérialisation de l'énergie* (pp. 28–64; second and last article): L. ROUGIER. – "The discoveries of modern physics have led physicists to two very distinct conceptions of the universe. The first can be illustrated by the suggestive name of the dematerialization of matter. It consists in reducing matter to being only the place of singular points of torsion, condensation, or better, of destruction, in a *milieu* endowed with inertia and mechanical properties: the dielectric ether of Faraday and Maxwell." "In renouncing the ether we are conducted to another conception, that of the materialization of energy. . . . It appears as endowed with inertia, weight, and structure, and manifests itself under two forms: the one is called, in virtue of a long prescription, matter, the other, radiation. . . . Matter is characterized by its structure, that is to say, by the number and nature of the electrons. . . . Radiation is a form of energy which no longer appears as propagated under the form of continuous waves in a hypothetical *milieu*, but as expelled in the form of discrete unities in empty space. . . . It is endowed . . . with inertia, weight, and structure. . . . The ancient metaphysical problem of the action of the imponderable on the ponderable, of force on matter . . . disappears as a pseudo-problem." *Revue critique.* – Ch. Werner, *Études de philosophie morale:* ANDRÉ LALANDE. *Analyses et Comptes rendus.* – Edgard Milhaud, *La Société des nations:* HUBERT BOURGIN. H. L. A. Visser, *De collectieve Psyche in Recht en Staat:* G. DAVY. *Philosophical Essays in honor of James Edwin Creighton:* G. DAVY. *Revue des Périodiques. Nécrologie: Émile Durkheim.*

Hocking, William Ernest. Human Nature and Its Remaking. New Haven: Yale University Press. London: Henry Milford. 1918. Pp. xxvi + 434. $3.00.

Toohey, John J. An Elementary Handbook of Logic. New York: Schwartz, Kirwin & Fauss. 1918. Pp. xiv + 241. $1.25.

NOTES AND NEWS

DRS. C. E. FERREE and G. RAND presented a paper by invitation at the fifty-fourth Annual Convention of the American Ophthalmological Society, July 10, on "The Inertia of Adjustment of the Eye for Clear Seeing at Different Distances." A method and apparatus were described for testing for aviation and other vocations for which speed and accuracy of adjustment of the eye for clear seeing at different distances are prerequisites.

PROFESSOR WILMON H. SHELDON, of Dartmouth College, will teach at the College of the City of New York during the academic year, 1918–1919.

The Dial announces that it "is now established in its New York offices, at 152 West Thirteenth Street, to which all communications should hereafter be addressed. As announced in the last number, its custom of publishing one issue each in July and August will be adhered to this summer. The August number will appear on the twentieth. There will be two issues in September—the Fall Educational Number, September 5, and the Fall Announcement Number, September 19. Beginning October 3 publication will be weekly."

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Two Types of Transcendentalism in America. WOODBRIDGE RILEY.
Free Will. A. A. MERRILL.
The Definition of Infinity. RAY H. DOTTERER.
Reviews and Abstracts of Literature. Journals and New Books. Notes and News.

Volume XV. No. 12. June 6, 1918

Some Difficulties in James's Formulation of Pragmatism. ETHEL E. SABIN.
"The Most Desirable Macaria." A. I. DU P. COLEMAN.
Idealism on an Azalea Bush: or Practise and the Egocentric Predicament. ANNA T. KITCHEL.
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Volume XV. No. 13. June 20, 1918

Some Aspects of Pragmatism and Hegel. PHYLLIS ACKERMAN.
Societies: New York Branch of the American Psychological Association. H. L. HOLLINGWORTH.
Reviews and Abstracts of Literature. Journals and New Books. Notes and News.

Volume XV. No. 14. July 4, 1918

Mechanism and Causality in Physics. MORRIS RAPHAEL COHEN.
Reviews and Abstracts of Literature. Journals and New Books. Notes and News.

Volume XV. No. 15. July 18, 1918

Again, the Value Objective and the Value Judgment: Reply to Professor Perry and Dr. Fisher. WILBUR M. URBAN.
How the Concept of the Unconscious is Serviceable. LOUISE BRINK.
Another Comment on Professor Warren's Analysis of Purpose. WENDELL T. BUSH.
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An annual bibliography of psychological literature.

Journal of Philosophy, Psychology, and Scientific Methods—New York.
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Subscription $3. Edited by F. J. E. Woodbridge and Wendell T. Bush.

Archives of Psychology—Sub-station 84, N. Y.: Archives of Psychology.
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Psychological Clinic—Philadelphia: Psychological Clinic Press.
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The Behavior Monographs—Cambridge, Mass.: Emerson Hall.
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Psychoanalytic Review—Washington, D. C.: 3617 10th St., N. W.
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Journal of Experimental Psychology—Princeton, N. J.
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Journal of Applied Psychology—Worcester, Mass.: Florence Chandler.
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Edited by G. Stanley Hall, John Wallace Baird and L. R. Geissler.

Journal of Experimental Psychology—Princeton, N. J.
Psychological Review Company. 480 pages annually. Experimental.
Founded 1915. Subscription $3. Bi-monthly. Edited by John B. Watson.